

REMARKS

Claims 1-11, 15, and 17-29 are pending in the application. Claim 25 has been cancelled by this amendment. Claims 3-11, 17-20, 22, and 23 have been withdrawn from consideration as being directed to a non-elected invention. Therefore claims 1, 2, 15, 21, 24, and 26-29 are at issue.

Claim 1 has been amended to incorporate the features of now-cancelled claim 25 and a feature from claim 27. Support for these amendments to claim 1 can be found in claims 25 and 27 and in original claims 5 and 7. Claim 1 also has been amended to recite that the superabsorbent polymer particles are coated with a hydrophobic compound, multivalent cation, and optional hydrophilic compound, and to recite the amount of hydrophobic compound and the amount of multivalent cation. Support for these amendments can be found in the specification at page 5, lines 14-18; page 6, lines 6-18 and 32-36; page 6, line 41 through page 7, line 32; page 7, lines 41-42; page 8, lines 26-33; page 17, line 25 through page 18, line 4; and Examples 1-31 at pages 18 and 19. Claim 27 has been amended to conform in scope to claim 1.

The claimed invention is directed to a hydrogel having a specific floatability. The claimed hydrogel separates into two portions of superabsorbent polymer particles upon addition to a container filled with an aqueous fluid. One portion of the particles sinks to the bottom of the container and hydrogel swelling starts from the bottom in an upward direction. The other particle portion remains on the fluid surface and swells starting from the top in a downward direction.

Accordingly, the claimed hydrogel comprises standard superabsorbent polymer particles mixed with and coated by the claimed amounts of a hydrophobic compound and multivalent cation, and, optionally, a hydrophilic compound. The resulting superabsorbent polymer particles having sufficient hydrophobic character float on the surface of an aqueous fluid to start thickening from the surface of the liquid, the remaining portion of superabsorbent polymer particles sink in the aqueous fluid to start thickening from the bottom of the liquid. This is achieved by treating the superabsorbent polymer particles with a

As stated in the specification at page 5, lines 14-21:

"The additional coating with hydrophobic particles causes a portion of the superabsorbent to remain on the surface of the fluid to be thickened after all the superabsorbent needed has been added to the fluid to be thickened. A further portion of this superabsorbent thus treated slowly sinks into the solution to be thickened, since superabsorbents based on polyacrylates normally have a higher density than the solutions to be thickened. Without treatment, a commercially available superabsorbent would simply just sink into the solution immediately after addition."

The operation of the claimed hydrogel was demonstrated to the examiner in a previously submitted video. The claimed invention also is illustrated in Examples 1-31 at pages 18 and 19 of the specification.

Claims 1, 2, 15, and 21 stand rejected under 35 U.S.C. §103 as being obvious over Canadian Patent No. 2,179,775 (CA '775) in view of WO 95/15771 (WO '771). Claims 24-26 stand rejected under 35 U.S.C. §103 as being obvious over CA '775 in view of WO '771 and further in view of Karapasha et al. U.S. Patent No. 5,306,487 ('487). Claims 27-29 stand rejected under 35 U.S.C. §103 as being obvious over CA '775 in view of WO '771 in further view of Elmquist U.S. Patent No. 4,302,369 ('369) and further in view of Frenz et al. U.S. Patent Publication No. 2002/0128618 ('618 publication). Applicants traverse these rejections.

These rejections are based on a contention that CA '775 discloses a hydrogel that thickens a liquid from the surface of a liquid and WO '771 discloses a hydrogel that thickens from the bottom of the liquid, and therefore a mixture of the hydrogels of CA '775 and WO '771 render the present claims obvious. The '487 and '369 patents and the '618 publication are cited as disclosing further claim elements, such as the identity of the hydrophobic compound and the presence of a multivalent cation. The examiner however has failed to consider the invention as a whole and constructs a polymer mixture that is asserted to provide the same results as the present invention. The present claims however achieve the desired and claimed, result *not* by admixing two different types superabsorbent polymer

particles, but by providing a coating of a hydrophobic compound and a multivalent cation on superabsorbent polymer particles of a single identity.

A determination that a claimed invention would have been obvious under §103(a) is a legal conclusion involving four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Secondary considerations of non-obviousness include factors such as commercial success, long-felt but unresolved needs, the failure of others, and/or *unexpected results achieved by the claimed invention*. *Id.* Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art which the claimed subject matter pertains, who is presumed to have all prior art references in the field of the invention available to him/her. In *re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Furthermore, obviousness must be determined as of the time the invention was made and in view of the state of the art that existed at that time. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-51 (Fed. Cir. 1988).

The Patent Office must clearly articulate facts and reasons why the claimed invention "as a whole" would have been obvious to a hypothetical person having ordinary skill in the art at least as of the claimed invention's effective filing date. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007) (citing with approval *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")); see also MPEP §2143 ("The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of reason(s) why the claimed invention would have been obvious.").

To reach a proper determination under 35 U.S.C. §103(a), the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicants'

disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the *facts* gleaned from the prior art. MPEP §2142.

To establish a *prima facie* case of obviousness, three requirements must be satisfied. First, as the U.S. Supreme Court held in *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 (2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was *an apparent reason* to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to *identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements* in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." (emphasis added, *KSR, supra*). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. In *re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

As recently articulated by the Court of Appeals for the Federal Circuit in *Ortho-McNeil Pharmaceutical Inc. v. Mylan Laboratories Inc.*, 86 USPQ 2d, 1196, 1201-2 (Fed. Cir. 2008):

"As this court has explained, however, a flexible TSM test remains the primary guarantee against a non-statutory hindsight analysis such as occurred in this case. *In re Translogic Tech., Inc.* 504 F.3d 1249, 1257 [84 USPQ 2d 1929]

(Fed. Cir. 2007) ("[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.)."

CA '775 discloses an absorbent polymer having a porous structure and a sufficiently low density such that the polymer *eventually* floats in water. The porous structure of the CA '775 polymer is formed by dispersing nitrogen in the polymer (CA '775, abstract, and page 4, first full paragraph).

CA '775 further discloses that the disclosed polymer particles have a density greater than 1.0 g/cm^3 and initially *sink* in water, and as the nitrogen gas volume increases to decrease particle density, the particles then can float. As stated in CA '775, at page 10, first full paragraph:

"When the polymers according to the present invention are used together with water or aqueous liquids, the finely dispersed gas volumes increase during the swelling process, thereby a swollen hydrogel with a reduced gel strength in equilibrium state results. At the same time, the average total density of the swollen particles decreases continuously *in dependence on the swelling degree*, until a value of less than 1.0 g/cm^3 is achieved. The polymer particles which were heavier than water in the solid, dry state first, *rise up and float* in swollen condition on the water or liquid surface." (Emphasis added)

Also see CA '775 examples, wherein the dry particles have a density of $1.3\text{-}1.7 \text{ g/cm}^3$, and the *swollen* particles have a density of $0.98\text{-}0.99 \text{ g/cm}^3$. The CA '775 particles therefore swell from the *bottom* of a liquid and rise to the top after swelling. The examples of CA '775 further show that it takes time to absorb water, lose density, and then float. Also see CA '775, page 6, third paragraph.

CA '775 also fails to teach or suggest adding a hydrophobic compound to the superabsorbent polymer particles. The examiner points to pages 6 and 7 of CA '775 for a teaching of a hydrophobic compound. However, this disclosure merely relates to the inclusion of optional *monomers* that can be copolymerized into the polymer. The hydrophobic *monomers* do not materially relate to the density of the CA '775 particles, which require a dispersed gas to provide a low swollen particle gel density. The hydrophobic

monomer arguably may effect the amount of fluid absorbed by the superabsorbent gel particles, but does not impact whether the superabsorbent polymer particles float or sink in water. Further, the present claims recite that the hydrophobic compound is a hydrophobicized silica or a hydrophilicized mixture of silicone and alumina. CA '775 is limited to disclosing hydrophobic vinyl monomers.

The examiner states that CA '775 teaches mixing floatable superabsorbent hydrogel with non-floatable absorbent for the production of absorbent materials. The examiner has not referred to a portion of CA '775 that supports this statement, and applicants are unable to find support for the examiner's statement. If the examiner is relying upon CA '775, page 4, first paragraph, this portion of CA '775 merely states that *floatable* auxiliary agents, like cork flour, has been included in prior superabsorbent polymer particles such that the particles have a sufficiently low density to float. If the examiner is relying upon CA '775, page 11, third paragraph, the reference discloses *non*-absorbent materials, e.g., clay, plastics, cellulose, for separation from the low density superabsorbent polymer particles, but fails to teach an *absorbent* that sinks. Regardless, the examiner is referring a particle mixture that is different from the coated superabsorbent polymer particles presently claimed.

At page 3 of the Office Action, the examiner states a hydrogel thickens from the surface of a solution or suspension. If arguably correct, the examiner has not considered the claim as a whole, which clearly recites that 40% to 90% of an aqueous solution or suspension is thickened starting from the surface. CA '775 fails to teach or suggest such a feature because the particles are originally heavier than water, sink, swell, then float. CA '775 also fails to teach thickening from the bottom of the container because after swelling to a certain degree, the particles float.

WO '771 is directed to a method of disinfecting waste by mixing dry glutaraldehyde with a superabsorbent. The mixture is added to a liquid waste and *settles* to the bottom before gellation takes place (WO '771, page 2, lines 16-19). WO '771 clearly teaches that the glutaraldehyde is admixed with a non-swelling absorbent, which in turn is admixed with a granular superabsorbent (WO '771, page 3, line 20 through page 4, line 5). This mixture "does drop to the lower portion of the container" (WO '771, page 4, line 20). The mixture of premixed glutaraldehyde and granular superabsorbent allows for a better

distribution of the glutaraldehyde, but swelling of the superabsorbent granular occurs only from the bottom of the liquid waste.

WO '771 fails to teach or suggest superabsorbent polymer particles that gel at the surface of the liquid waste and fails to teach or suggest either a hydrophobic compound in the low amounts claimed or a multivalent cation.

The combination of CA '775 and WO '771 fail to render the present claims obvious. First, the present claims are not directed to a mixture of superabsorbent polymer particles, but to superabsorbent polymer particles admixed with and coated by a hydrophobic compound and a multivalent cation, such that some treated superabsorbent particles float and some sink, with the result that thickening starts from the surface of the liquid *and* from the bottom of the container. The claims do not recite a mixture of different types of superabsorbent polymer particles, such as from CA '775 and WO '771, to achieve this result. The examiner has constructed an obviousness argument directed to a different composition from that claimed.

In addition, the combination of references fails to establish a *prima facie* case of obviousness because the references do not teach or suggest every claimed element. The examiner points to the hydrophobic *monomers* that optionally can be included in the backbone of the superabsorbent polymer. However, the resulting polymer is still superabsorbent and would have a density such that the polymer particles would sink in water. The hydrophobic compound recited in the claims (i.e., silica and alumina) is admixed with the superabsorbent polymer particles, as opposed to a hydrophobic monomer that may be a minor comonomer of the polymer itself. Both references fail to teach or suggest a multivalent cation.

Further, there is no apparent reason for a person skilled in the art to modify the disclosures of CA '775 and WO '771 in a way that arrives at the present invention. The combination of references provide no reason that would have prompted a person skilled in the art to add a low amount of a hydrophobic compound *and* multivalent cations to superabsorbent polymer particles. First, there can be *no* incentive to mix a multivalent cation with superabsorbent polymer particles because neither reference even teaches or suggests

multivalent cations. Second, combining the teachings of CA '775 and WO '771 would provide no more than a mixture of polymers that *sink*, and *swell* from the *bottom* of the container. See entire WO '771 disclosure and CA '775, page 10, first paragraph (discussed above). The combination of references fails to teach or suggest a composition that *starts* thickening from the surface of the liquid *and starts* thickening from the bottom of the container, *and* thickens from 40% to 90% of the liquid from the surface of the liquid.

Third, for the reasons provided above, the combination of references fail to provide a reasonable expectation of providing a composition that successfully thickens an aqueous liquid *starting* from *both* the surface and bottom of the liquid. The references merely teach *sinking* particles that swell from the bottom of the liquid; and the references are silent with respect to multivalent cations.

With respect to the examiner's comments regarding CA '775 and claim 2, CA '775 at page 19, Table 1 does not teach or suggest a *blood* absorbance of at least 10 g/g or a solidification time of less than 120 seconds. The examples and table show the amount of 0.9% NaCl solution (e.g., synthetic urine) absorbed by the polymer of Examples 16-21 after 15 seconds and after 60 seconds. These times are different from a solidification time and the amounts of absorbed 0.9% NaCl solution do *not* relate to total amounts of absorbed blood (which is much more difficult to absorb than 0.9% NaCl solution). See CA '775, page 19, third paragraph, for a description of the tests summarized in Table 1. Also specification, present specification, page 2, lines 5-7.

In this case, each element of the claims is *not even* disclosed or suggested in combination of the references, and the examiner has provided no reasoning that would have prompted a skilled person to modify the CA '775 and WO '771 disclosures in a way to arrive at the present invention. A person skilled in the art also would not have had a reasonable expectation of successfully thickening a liquid *starting* at the *top* to an extent of 40%-90% of the liquid *and the bottom* of a liquid from the combination of references. CA '775 in combination with WO '771 therefore fails to satisfy all three of the requirements required to establish a *prima facie* case of obviousness.

Accordingly, it is submitted therefore that the pending claims would not have been obvious over CA '775 in combination with WO '771 under 35 U.S.C. §103 and that the rejection should be withdrawn.

CA '775 and WO '771 are discussed above, as is the patentability of the present claims over this combination of references. The '487 patent is relied upon for teaching hydrophobic silica or hydrophobic silica and alumina. The '487 patent does not overcome the deficiencies of the combination of CA '774 and WO '771.

The '487 patent is directed to odor-controlling particles comprising a superabsorbent particle having *high* levels of odor-controlling agents adhered thereto by a binder ('487 patent, abstract). The odor-controlling agent can be an SiO₂/AlO₂ (silica/alumina) zeolite and is present in an amount of *at least 20%*, and more preferably at least 30%, by weight of the composition ('487 patent, column 3, lines 53-57).

The composition of the '487 patent is *utilized as particles* to absorb odors. The particles are used to absorb urine, etc., but *not* to thicken and gel a volume of liquid. The reference is silent with respect to absorbing and gelling liquids, or to providing a composition capable of thickening a liquid by starting at the surface and at the bottom of the liquid. In addition, the minimum amount of SiO₂/AlO₂ disclosed in the '487 patent is *at least 20 times* higher than the maximum amount of hydrophobic compound recited in the claims.

The combination of CA '775, WO '771, and the '487 patent do not render the present claims obvious because the references fail to satisfy *all* three of the necessary requirements to establish a *prima facie* case of obviousness. In addition to the claimed elements neither taught nor suggested by CA '775 and WO '771, as discussed above, the '487 patent fails to teach or suggest the low amount of hydrophobic compound utilized in the present invention.

Second, the '487 patent provides no apparent reason to modify the teachings therein, then combine these modifications with CA '775 and WO '771, in a manner that arrives at the present invention. In addition to the reasons set forth above with respect to CA '775 and WO '771, where is the incentive from the '487 patent to reduce the amount of

arrives at the present invention. In addition to the reasons set forth above with respect to CA '775 and WO '771, where is the incentive from the '487 patent to reduce the amount of silica/alumina by a factor of at least 20, then use the resulting composition to thicken a liquid from the top and bottom. Such a modification is illogical because the '487 patent is directed solely to odor-controlled using *particles*, not the addition of particles to a liquid. Further, reducing the amount of hydrophobic compound to 0.05% to 1%, by weight, would destroy the teachings of the '487 patent. Such a low amount of hydrophobic compound would not provide sufficient odor control.

Third, there is no reasonable expectation of successfully providing a composition that thickens a liquid starting from the top and bottom after reading the '487 patent in combination with CA '775 and WO '771. The '487 patent teaches using a high amount of hydrophobic $\text{SiO}_2/\text{AlO}_2$, and at such a high amount *all* the particles are expected to float. There is no teaching or suggestion in the '487 patent that would lead a person skilled in the art to reduce the amount of $\text{SiO}_2/\text{AlO}_2$ by a factor of at least 20 with any reasonable expectation of providing a claimed composition that operates as demonstrated.

In addition to the above, the examiner's reasoning leading to a contention of obviousness contains errors. At page 5 of the Office Action, the examiner contends that CA '775 discloses hydrophobic compounds. As discussed above, this is incorrect, CA '775 discloses hydrophobic comonomers that are polymerized into the polymer. CA '775 provides no incentive to substitute an alumina/silica of the '487 patent (that cannot be copolymerized) for a hydrophobic comonomer of CA '775.

With respect to an assertion that WO '771 discloses *aluminas* at page 7, lines 6-8, the reference merely teaches crosslinking of sodium carboxymethyl cellulose using aluminum *ions*, i.e., Al^{3+} . These aluminum ions are not hydrophobic and are complexed into the polymer and generally unavailable. In contrast, the present claims recite *silica* (SiO_2) and *alumina* (Al_2O_3) as the hydrophobic compounds. Aluminas differ greatly from aluminum ions and are entirely different compounds. Therefore, the examiner's contention that WO '771 discloses alumina is incorrect. WO '771 discloses silica as a desiccant for glutaraldehyde, but it is clear that WO '771 teaches swelling only from the bottom of the container. Furthermore, WO '771 discloses using a high amount of silica, i.e., about 20%, by

The examiner states that exhibiting improved odor control provides motivation to include a hydrophobic compound with superabsorbent polymer particles. However, the present invention is not concerned with odor control. The present composition is added to a liquid to thicken the liquid such that the particles swell, so any odor control properties would be lost. Persons skilled in the art of absorbing wastes by adding particles to a liquid are not motivated by improving odor control properties.

The Court in *KSR* also held that a factfinder should be aware of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. *KSR Intern. Co. v. Teleflex Inc.*, 127 S.Ct., 1727, 1742 (U.S. 2007). The examiner may be utilizing the teachings of the specification in an attempt to modify the references to allegedly arrive at the claimed invention. Applicants respectfully note that MPEP §§2142 and 2143 require that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants' disclosure. *In re Vaeck*, 947 F.2d 4899 (Fed. Cir. 1991). The mere fact that the prior art may be modified in the manner suggested by the examiner does *not* make the modification obvious unless the prior art suggests the desirability of the modification. *In re Gordan*, 733, F.2d at 902, 221 USPQ at 1127. *In re Fritch*, 23 USPQ 2nd 1780, 1783-1784 (Fed. Cir. 1992). It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. *In re Gorman*, 933 Fed. 2nd 982, 987, 18 USPQ 2nd 1885, 1888 (Fed. Cir. 1991). *In re Fritch*, 23 USPQ 2nd 1780 at 1784 (Fed. Cir. 1992).

The Court in *KSR* held that a patent composed of several elements is not proved obvious merely by demonstrating that each of the elements was, independently, known in the prior art (*KSR*, 127 S.Ct. at 1741). The court further emphasized the importance of *identifying a reason* that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does, which the examiner has not provided (*Id.*, emphasis added).

In this case, each element of the claims is *not even* disclosed or suggested in the combination of references, and the examiner has provided no reasoning that would have prompted a skilled person to modify CA '775, WO '771, and '487 patent disclosures in a way

In this case, each element of the claims is *not even* disclosed or suggested in the combination of references, and the examiner has provided no reasoning that would have prompted a skilled person to modify CA '775, WO '771, and '487 patent disclosures in a way to arrive at the present invention, especially with any reasonable expectation of success. The combination of references therefore fails to satisfy all three of the three requirements required to establish a *prima facie* case of obviousness.

Accordingly, it is submitted that the pending claims would not have been obvious over a combination of CA '775, WO '771, and the '487 patent under 35 U.S.C. §103, and that the rejection should be withdrawn. With respect to claim 26, this claim recites a preferred embodiment of the present invention, and applicants do not rely solely upon the features recited in claim 26 for patentability, but rather rely upon the features recited in independent claim 1 and in dependent claim 26. It is further submitted that the references alone or in any combination fail to teach or suggest including a hydrophilic compound in a composition as recited in claim 1.

With respect to claims 27-29, the patentability of these claims over CA '775 and WO '711 has been discussed above. The '329 patent is relied upon teaching of aluminum ions. The '618 publication is relied upon for teaching a sorbitan ester. Applicant traverses this rejection.

The '369 patent teaches treating a graft copolymer to improve absorption properties. The aluminum salt is used to crosslink the polymer and to modify the surface of the polymer particle. The surface modification does *not* provide dramatic advantages ('369 patent, column 4, lines 57-67). In fact, the '369 patent, at column 6, lines 3-7, states that treatment of the product with aluminum ions "reduces the overall absorbency of the product directly proportional to the increased aluminum level."

The '369 patent therefore teaches away from the present invention. In the thickening of a large volume of a liquid, polymer absorbency is a primary property. Thus, a person skilled in the art desiring to provide a composition that gels a large volume of blood would be discouraged from treating a superabsorbent polymer particles with aluminum ions. The improved wicking provided by the '369 patent is not a major consideration when

of waste in a container. Because wicking is not a primary consideration, and alumina ions adversely affect absorbency, a person skilled in the art would not have any incentive or apparent reason to use aluminum ions with any reasonable expectation of success.

For all the reasons set forth above with respect to the patentability of the present claims over CA '775, WO '711, and the '487 patent, and because the '369 patent teaches away from the present invention, it is submitted that the pending claims are patentable over any combination of the four above-identified reference and that the rejection should be withdrawn. The examiner is again reminded of the holding in *KSR* that a claim is not obvious merely because each element of the claim was, independently, known in the art. Also, the mere fact that the prior art may be modified in the manner suggested by the examiner does *not* make the modification obvious unless the prior art suggests the desirability of the modification.

The '618 publication is relied for a teaching of sorbitan esters. However, the portion of the '618 publication relied upon by the examiner (i.e., paragraph [0057]) discloses the use of a sorbitan fatty acid ester as a *crosslinker* to use in the polymerization of a monomer, like acrylic acid. See start of paragraph [0057] ("Useful crosslinker include...") and start of paragraph [0058] ("The crosslinkers are present in the reaction mixture...")

The sorbitan fatty ester of the '618 publication therefore is consumed in the polymerization reaction that forms the superabsorbent polymer. This is in contrast to the present claim 29 that recite a sorbitan ester *surfactant* mixed with the other claimed ingredients of the composition of claim 1. The '618 publication fails to teach a sorbitan ester that is added to an already formed superabsorbent polymer particle. The sorbitan fatty acid ester of the '618 patent is consumed and therefore is unavailable as a surfactant.

The examiner points to paragraph [0014] as showing that the sorbitan ester improves permeability. This is incorrect. The '618 publication is directed to a superabsorbent polymer having the features recited in paragraph [0018], which can be achieved by using any of the starting materials (monomer, crosslinker, surface crosslinker) disclosed in the reference. Further, as stated above, the sorbitan fatty ester is consumed in the reaction.

With respect to claims 27-29 these claims recite preferred embodiments of the present invention, and applicants do not rely solely upon the features recited in claims 27-29 for patentability, but rather rely upon the features recited in independent claim 1 and in dependent claims 27-29.


For all of the reasons set forth above with respect to the patentability of the present claims over CA '775, WO '771, and the '487 and '369 patent, and for the reasons set forth above with respect to the '618 publication, it is submitted that the pending claims are patentable over any combination of the five above-identified references and that the rejection should be withdrawn.

It is submitted that all pending claims are in a form and condition for allowance. An early and favorable action on the merits is respectfully requested.

Should the examiner wish to discuss the foregoing, or any matter of form in an effort to advance this application toward allowance, the examiner is urged to telephone the undersigned at the indicated number.

Dated: October 26, 2009

Respectfully submitted,

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